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10/697,128	10/30/2003	Gail A. Alverson	32475-8003US7	9968

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PERKINS COIE LLP
PATENT-SEA
P.O. BOX 1247
SEATTLE, WA 98111-1247

EXAMINER	
KAWSAR, ABDULLAH AL	

ART UNIT	PAPER NUMBER
2195	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/697,128	ALVERSON ET AL.	
	Examiner	Art Unit	
	ABDULLAH AL KAWSAR	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04/10/2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29 and 36-56* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29 and 36-56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/08/2008, 04/10/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-29 and 36-56 are pending.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: claim 49, "computer-readable storage medium" is not disclosed in the specification to support the claimed communication module.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 49-56 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Currently amended independent claim 49 recites "computer-readable storage" does not appear to be described in the specification in such a way as to reasonably convey to one of ordinary skill in the art that the inventions, at the time the application was filed, had possession of the claimed invention. Applicant is suggested to amend "computer-readable storage medium" with "computer-storage medium".

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-29 and 36-56 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. The following claims languages are not clearly understood:

i. Claim 1, line 5 recites "located pass an end of the buffer" it is unclear where are the forwarding words located (i.e. adjacent to the end of the buffer in the next address location to the end of the buffer or other end of the buffer after wrap-around?). Line 6 recites "points to words at the other end of the buffer" it is unclear what is meant by that (i.e. forwarding pointers to point to the words at the other end of the buffer?).

ii. Claim 36, lines 3-4 recite "forwarding words located past an end of the buffer pointers to locations" it is unclear what is meant by pointers to locations (i.e. forwarding words at the end of the buffer to the adjacent address storing pointers pointing to the other end of the buffer or storing buffer pointers?).

iii. Claim 49, line 5 recites "that when then" it is unclear what is meant by when then. Line 3 recites "pointing to a word" and line 6 recites "number of words" it is unclear if the access request if for single word or multiple word being accessed at a time since the increment is for multiple words access.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 36 and 48-52 are rejected under 35 U.S.C. 102(e) as being anticipated by over Soell et al.(Soell) US Patent No. 5923900.

9. As per claim 36, Soell teaches a computer system for implementing a circular buffer, the computer system having a processor, the system comprising:

a component that stores in forwarding words located past an end of the buffer pointers to locations at the other end of the buffer and enables forwarding in the pointers (col 3, lines 14-16; lines 42-60; col 4, lines 9-13; col 5, lines 25-32);

a component that accesses the buffer using an access pointer (col 2, lines 46-49);

a component that increments the access pointer by the number of words accessed so that the incremented pointer points to a location for the next access(col 1, lines 59-67 through col 2 lines 1; col 2, lines 53-56); and

a component that, when forwarded word is accessed, directs the access to the pointed to location at the other end of the buffer(col 4, lines 9-13; col 5, lines 25-32).

10. As per claim 48, Soell teaches the access does not include code for detecting the end of the buffer (col 4, lines 43-47).

11. As per claim 49, Soell teaches a computer-readable storage medium for implementing a circular buffer, comprising:

a buffer with storage locations, the buffer having a beginning and an end and having an access pointer, the access pointer pointing to a word to be accessed such that when then the buffer is accessed, the access pointer is incremented by the number of words being accessed so that the access pointer points to a location for the next access (col 1, lines 23-26; col 2, lines 44-57);

a forwarding word adjacent to the end of the buffer (col 1, lines 23-26; lines 53-58); and

a pointer in the forwarding word pointing to the beginning of the buffer so that when the forwarding word is accessed, the access can be redirected to the beginning of the buffer (col 4, lines 9-13; col 5, lines 25-32).

12. As per claim 50, Soell teaches multiple forwarding words wherein each forwarding word has a pointer to a storage location (col 1, lines 62-67; col 3, lines 42-45).

13. As per claim 51, Soell teaches each forwarding word has forwarding enabled (col 1, lines 62-67; col 3, lines 42-45).

14. As per claim 52, it has similar limitations as of claim 51 above. Therefore it is rejected under the same rational as of claim 51 above.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16. Claims 1-9, 13, 22-26, 38-44 and 53-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soell et al.(Soell) US Patent No. 5923900, in view of Niu et al.(Niu) US Patent No. 6473818.

17. As per claim 1, Soell teaches the invention as claimed including a method in a computer system for implementing a circular buffer, comprising:

providing a buffer of words having a pointer for pointing to a word within the buffer and having a size (col 2, lines 46-49; col 3, lines 31-34);

storing in a number of forwarding words, located past an end of the buffer, pointers to words at the other end of the buffer, maximum number of words of the buffer to be accessed at a time corresponding to the number of forwarding words (col 3, lines 14-16; lines 42-60; col 4, lines 9-13; col 5, lines 25-32);

enabling forwarding in the pointers (col 1, lines 23-26; lines 53-58); and

when a forwarding word is to be accessed, directing the access to the word at the other end of the buffer pointed to by the pointer stored in the accessed forwarding word (col 4, lines 9-13; col 5, lines 25-32); and

accessing a number of words starting at the word pointed to by the pointer wherein when a word within the buffer is to be accessed accessing that word directly and incrementing the pointer by the number of words being accessed so that the buffer can be accessed without checking for the end of the buffer (col 1, lines 59-67 through col 2 lines 1; col 2, lines 53-56; col 4, lines 6-8).

Soell does not specifically disclose pointed to by the pointer modulo the size of the buffer.

However, Niu teaches pointed to by the pointer modulo the size of the buffer (col 7, lines 1-4).

18. It would have been obvious to a person of ordinary skill in art at the time of invention was made to incorporate the teaching of Niu into the method of Soell to have a pointer whose value modulo a size of the buffer indicates the starting position for storing data in the buffer. The modification would have been obvious because one of the ordinary skills of the art would utilize the circular buffer with modulo operand to be able to locate the length of the buffer.

19. As per claim 2, Niu teaches the buffer is pointed to by a write pointer whose value modulo a size of the buffer indicates the starting position for storing data in the buffer (col 6, lines 54-57; lines 63-67 through col 7, lines 1-5).

20. As per claim 3, Niu teaches the buffer is pointed to by a read pointer whose value modulo a size of the buffer indicates the starting position for reading data from the buffer(col 6, lines 54-57; lines 63-67 through col 7, lines 1-5).

21. As per claim 4, Niu teaches the access is a read (col 2, lines 37-39).

22. As per claim 5, Niu teaches the access is a write (col 2, lines 32-33).

23. As per claim 6, Niu teaches the access is using a pointer (col 1, lines 43-44).

24. As per claim 7, Niu teaches the pointer is a write pointer (col 2, lines 34-36).

25. As per claim 8, Niu teaches the pointer is a read pointer (col 2, lines 40-43).

26. As per claim 9, Niu teaches the pointer has a synchronization access mode (col 2, lines 6-12).

27. As per claim 13, Soell teaches the access does not include code for detecting the end of the buffer (col 4, lines 43-47).

28. As per claim 22, Niu teaches wherein when the access has a synchronization access mode of sync, read access to a location in the buffer is permitted only when the location is full (col 2, lines 37-43).

29. As per claim 23, Niu teaches after the read access, the location is set to empty (col 2, lines 10-12).

30. As per claim 24, Niu teaches the access has a synchronization access mode of sync, write access to a location in the buffer is permitted only when the location is empty (col 2, lines 10-12; lines 37-43).

31. As per claim 25, Niu teaches after the write access, the location is set to full (col 2, lines 10-12).

32. As per claim 26, Niu teaches including storing a pointer to an invalid location in a location adjacent to the forwarding words with forwarding of that location enabled so that when the location adjacent to the forwarding words is accessed, an exception is raised (col 7, lines 10-12; lines 36-39).

33. As per claims 38-44, they have similar limitations as of claims 3-9 above. Therefore, they are rejected under the same rational as of claims 3-9 above.

34. As per claims 53-56, they have similar limitations as of claims 8, 3, 7 and 2 above. Therefore they are rejected under the same rational as of claims 8, 3, 7 and 2 above.

35. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soell et al.(Soell) US Patent No. 5923900, in view of Niu et al.(Niu) US Patent No. 6473818, and further in view of Johnson et al.(Johnson) US Patent No. 4887204.

36. As per claim 10, Soell in view of Niu do not specifically disclose the synchronization access mode is sync.

However, Johnson teaches the synchronization access mode is sync (col 7, lines 44-46).

37. It would have been obvious to a person of ordinary skill in art at the time of invention was made to incorporate the teaching of Johnson into the combined method of Soell and Niu to have synchronization mode. The modification would have been obvious because one of the ordinary skills of the art would want to be able to utilize the synchronization method to be able to read/write on the memory buffer without overwriting modifying any data.

38. As per claim 11, Johnson teaches the synchronization access mode is normal (col 7, lines 62-65).

39. As per claim 12, Johnson teaches the synchronization access mode can be set (col 7, lines 36-38).

40. As per claims 45-47, they have similar limitations as of claims 10-12 above. Therefore they are rejected under the same rational as of claims 10-12 above.

41. Claims 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soell et al.(Soell) US Patent No. 5923900, in view of Niu et al.(Niu) US Patent No. 6473818, as applied to claim 1 above, and further in view of Ray et al.(Ray) US Patent No. 5974483, in view of Rahman et al.(Rahman) US Patent No. 5805878.

42. As per claim 14, Soell and Niu do not specifically disclose when adding data to the buffer, receiving an indication of data to be written, the data having a size; fetching a write pointer; adding an indication of the size of the data to the write pointer; and copying the data into the buffer starting at a location indicated by the fetched write pointer.

However, Ray teaches when adding data to the buffer, receiving an indication of data to be written, the data having a size(col 4, lines 54-56; col 5, lines 15-16);

adding an indication of the size of the data to the write pointer(col 3, lines 42-44); and

copying the data into the buffer starting at a location indicated by the fetched write pointer (col 4, lines 47-53).

It would have been obvious to a person of ordinary skill in art at the time of invention was made to incorporate the teaching of Ray into the combined method of Soell and Niu to have indication of size of the data to be written. The modification would have been obvious because

one of the ordinary skills of the art would implement the method of Ray to know the size to be able to manage the data allocation.

Ray does not specifically disclose fetching a write pointer.

However, Rahman teaches fetching a write pointer (col 3, lines 2-5).

43. It would have been obvious to a person of ordinary skill in art at the time of invention was made to incorporate the teaching of Rahman into the combined method of Soell, Niu and Ray to have a fetch operand to fetch pointers. The modification would have been obvious because one of the ordinary skills of the art would implement fetching to be able to get a read or write pointer according to need and fetch operand assures getting the write pointer.

44. As per claim 15, Rahman teaches the fetching and adding includes executing a fetch and add operation (col 2, lines 64-67 through col 3, lines 1-5.

45. As per claim 16, Ray teaches when the copying would occur in a word located past an end of the buffer, the copying automatically circles to the other end of the buffer (col 1, lines 50-55; lines 59-63).

46. As per claim 17, Niu teaches the adding includes calculating a modulo of a sum of the addition and a size of the buffer (col 6, lines 63-67 through col 7, lines 1-5).

47. As per claim 18, Ray teaches when reading data from the buffer, receiving an indication of a location where read data is to be stored (col 5, lines 3-5);

reading a size of the data to be read from the buffer (col 5, lines 16-17); and

copying data from the buffer to the indicated location (col 5, lines 3-6).

Ray does not specifically disclose fetching a read or write pointer.

However, Rahman teaches fetching a write pointer (col 1, lines 21-24; col 2, lines 64-67 through col 3, lines 1-5).

fetching a read pointer (col 1, lines 21-24; col 2, lines 64-67 through col 3, lines 1-5);

48. As per claim 19, Niu teaches setting the read pointer to a sum of the read pointer and the size of the data modulo a size of the buffer (col 6, lines 63-67 through col 7, lines 1-5).

49. As per claim 20, Niu teaches the read pointer is accessed with a synchronization access mode of sync col2, lines 10-12).

50. As per claim 21, Niu teaches wherein the data is read from the buffer using an access control mode of the read pointer (col 2, lines 40-43).

51. Claims 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soell et al.(Soell) US Patent No. 5923900, in view of Niu et al.(Niu) US Patent No. 6473818, as applied to claim 1 above, in view of Drews (Drews) US Patent No. 5867734.

52. As per claim 27, Soell and Niu do not specifically disclose the buffer is accessed by multiple readers and writers.

However, Drew teaches the buffer is accessed by multiple readers and writers (col 2, lines 4-5).

53. It would have been obvious to a person of ordinary skill in art at the time of invention was made to incorporate the teaching of Drews into the combined method of Soell and Niu to have the buffer is accessed by multiple readers and writers. The modification would have been obvious because one of the ordinary skills of the art would have multiple readers and writers to the buffer to accommodate multiple consumer and producers for accessing the buffer for data.

54. As per claim 28, Drew teaches the buffer is accessed by multiple producers (col 1, lines 16-20).

55. As per claim 29, Drews teaches the buffer is accessed by multiple consumers (col 1, lines 16-20).

56. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Soell et al.(Soell) US Patent No. 5923900, in view of Drews (Drews) US Patent No. 5867734.

57. As per claim 37, Soell does not specifically disclose the buffer is accessed by multiple readers and writers.

However, Drew teaches the buffer is accessed by multiple readers and writers (col 2, lines 4-5).

58. It would have been obvious to a person of ordinary skill in art at the time of invention was made to incorporate the teaching of Drews into the method of Soell to have the buffer is accessed by multiple readers and writers. The modification would have been obvious because one of the ordinary skills of the art would have multiple readers and writers to the buffer to accommodate multiple consumer and producers for accessing the buffer for data.

Response to Arguments

59. Applicant's arguments with respect to claim(s) have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

60. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

61. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

62. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdullah-Al Kawsar whose telephone number is 571-270-3169. The examiner can normally be reached on 7:30am to 5:00pm, EST.

63. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng Ai T. An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

64. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Meng-Ai An/
Supervisory Patent Examiner,
Art Unit 2195